IN THE CLAIMS

1. (Previously presented) An apparatus for driving a liquid crystal display, said display comprising an array of elongated row and an array of elongated column electrodes arranged transverse to the row electrodes, wherein overlapping areas of the two arrays of electrodes define pixels of the display when viewed in a viewing direction, said apparatus comprising:

at least two separate power sources; and

a circuit responsive to the at least two power sources and supplying electrical potentials to the row and column electrodes, to cause the display to display desired images, wherein at least one of the electrical potentials supplied to the row and column electrodes changes with a voltage supplied or caused to be supplied by one of the power sources, said circuit comprising two energy storage devices, wherein the devices are charged by one of the power sources during a portion of at least one field addressing cycle and used to supply electrical potentials to a row or column electrode in a different portion of such field addressing cycle, wherein the devices are charged for a fraction of such different portion to compensate for charge consumption.

2. (Previously presented) The apparatus of claim 1, the circuit comprising a control device and at least one energy storage device to supply said at least one of the electrical potentials, wherein the control device causes the at least one energy storage device to be charged in a first phase, and connects said at least one energy storage device to the voltage supplied or caused to be supplied by said one of the power sources and to the row or column electrodes in a later second phase, so that said at least one of the electrical potentials supplied by said at least one energy storage device to the row or column electrodes changes with said voltage.

3. (Previously presented) The apparatus of claim 2, wherein at least one energy storage device has at least two terminals, wherein the control device causes one terminal to be connected to the voltage and another terminal to be connected to the row

and column electrodes, wherein said another terminal supplies said at least one of the electrical potentials that changes with the voltage.

4. (Previously presented) The apparatus of claim 2, the at least one energy storage device comprising one or more capacitors.

5. (Original) The apparatus of claim 2, wherein the control device also causes the at least one energy storage device to supply electrical potentials to the row or column electrodes during the first phase.

6. (Original) The apparatus of claim 2, said at least two power sources supplying respectively a first and a second voltage and a common reference voltage, the difference between the second and the reference voltages defining a voltage differential, said control device comprising a first set of switches that causes a set of voltages to be generated that are above the reference voltage or below the first voltage by an integer multiple of the voltage differential.

7. (Original) The apparatus of claim 6, said control device further comprising a second set of switches that connect said set of voltages at selected times to the row and column electrodes so that the electrodes are driven by an IAPT driving method.

8. (Previously presented) The apparatus of claim 6, wherein some of the voltages in the set of voltages change with the reference voltage during some field addressing cycles and other voltages in the set of voltages change with the first voltage during other field addressing cycles.

9. (Previously presented) The apparatus of claim 2, said circuit comprising two energy storage devices each having two terminals, wherein the control device causes the two energy storage devices to be connected in parallel to the power sources during the first phase to charge the energy storage devices, so that they are charged to substantially the same voltage across their terminals.

10. (Previously presented) The apparatus of claim 2, said circuit comprising two energy storage devices each having two terminals, wherein the control device causes the two energy storage devices to be connected in series to the power source during the first phase to charge the energy storage devices.

11. (Original) The apparatus of claim 2 wherein the electrical potentials supplied by the circuit to the row electrodes are of a predetermined amplitude above a reference voltage in some field addressing cycles and of the predetermined amplitude below the reference voltage in other field addressing cycles, wherein the electrical potentials supplied by the circuit have a dynamic range substantially equal to said amplitude.

12. (Cancelled)

13. (Original) The apparatus of claim 1, said apparatus being an integrated circuit having a substrate, wherein the first and second power sources supply only electrical potentials that are higher or lower than a reference potential of the substrate.

Claims 14-16. cancelled.

17. (Currently Amended) The apparatus of claim ~~16~~54, wherein the pair of capacitors are connected in a voltage divider configuration separating three nodes, wherein the switching ~~circuit~~device causes one of the nodes in between the pair to be at a~~the~~ non-scanning voltage of row electrodes~~the first voltage range~~ in at least one field addressing cycle.

18. (Previously presented) The apparatus of claim 17, wherein the switching circuit causes voltages at one of the two remaining nodes to be supplied to a column electrode during at least one field addressing cycle.

19. (Currently Amended) The apparatus of claim ~~15~~54, wherein the capacitors are charged by the first or second power source during a portion of at least one

field addressing cycle and used to supply electrical potentials to a row or column electrode in a different portion of such field addressing cycle, wherein the capacitors are charged for a fraction of such different portion to compensate for charge consumption.

20. (Previously presented) The apparatus of claim 19, wherein the column electrodes are driven by column drivers, and wherein the column electrodes are substantially disconnected from column drivers during said fraction of such different portion to preserve column signals that have been applied to the column electrodes so that a desired image is displayed at pixels covered by the column electrodes that are substantially disconnected from the column drivers.

21. (Currently Amended) The apparatus of claim ~~14~~19, said apparatus being an integrated circuit having a substrate, wherein the first and second power sources supply only electrical potentials that are higher or lower than a reference potential of the substrate.

22. cancelled.

23. (Cancelled)

24. (Cancelled)

25. (Previously presented) A method for driving a liquid crystal display, said display comprising an array of elongated row and an array of elongated column electrodes arranged transverse to the row electrodes, wherein overlapping areas of the two arrays of electrodes define pixels of the display when viewed in a viewing direction, said method comprising

supplying electrical potentials to the row and column electrodes, to cause the display to display desired images by connecting a power supply and at least one column electrode to a first and a second electrical energy storage device so that in one row scanning cycle, the first device is connected to the power supply to charge the first device and the second device is connected to the at least one column electrode to apply to it an electrical potential, and in another row scanning cycle, the second device is connected to

the power supply to charge the second device and the first device is connected to the at least one column electrode to apply to it an electrical potential;

wherein said supplying connects the power supply and the at least one column electrode to the two energy storage devices according to a switching timing waveform that is delayed relative to said row scanning cycles, so that at least one of the energy storage devices is connected to the at least one column electrode during a portion of a row scanning cycle, and the remaining energy storage device is connected to the at least one column electrode during another portion of such row scanning cycle.

26. (Previously presented) The method of claim 25, wherein at least one of the electrical potentials supplied to the row or column electrodes by one of the devices changes with a voltage supplied by a power source.

27. (Previously presented) The method of claim 26, wherein said at least one of the energy storage devices has at least two terminals, wherein the supplying causes one terminal to be connected to the voltage and another terminal to be connected to the row and column electrodes, and causes said another terminal to supply said at least one of the electrical potentials that changes with the voltage.

28. (Original) The method of claim 25, wherein said supplying comprises connecting an energy storage device alternately to a power supply and at least one column electrode.

29. (Previously presented) The method of claim 28, said supplying comprising connecting the power supply and the at least one column electrode to the first and second electrical energy storage devices in alternate row scanning cycles.

30. (Cancelled)

31. (Previously presented) The method of claim 25, wherein said time delay is such that a major portion of the energy of the first energy storage device is transferred to the at least one column electrode during a beginning portion of such row scanning cycle, thereby driving the voltage of said at least one column electrode to close to a target value, and a minor portion of the energy of the second energy storage device is transferred to the at least one column electrode during such row scanning cycle but after

the beginning portion of such row scanning cycle, thereby driving the voltage of said at least one column electrode to substantially the target value.

32. (Previously presented) The method of claim 25, wherein said switching timing waveform is such that during a portion of such row scanning cycle, both the first and the second energy storage devices are connected to the at least one column electrode.

33. (Previously presented) A method for driving a liquid crystal display, said display comprising an array of elongated row and an array of elongated column electrodes arranged transverse to the row electrodes, wherein overlapping areas of the two arrays of electrodes define pixels of the display when viewed in a viewing direction, said method comprising

supplying electrical potentials to the row and column electrodes, to cause the display to display desired images by connecting a power supply and at least one column electrode to a first and a second electrical energy storage device so that in one row scanning cycle, the first device is connected to the power supply to charge the first device and the second device is connected to the at least one column electrode to apply to it an electrical potential, and in another row scanning cycle, the second device is connected to the power supply to charge the second device and the first device is connected to the at least one column electrode to apply to it an electrical potential;

wherein the first energy storage drives the voltage of said at least one column electrode to close to a target value during a beginning portion of a row scanning cycle, and the second energy storage device drives the voltage of said at least one column electrode to substantially the target value during such row scanning cycle but after the beginning portion of such row scanning cycle.

34. (Previously presented) The method of claim 33, wherein a major portion of the energy of the first energy storage device is transferred to the at least one column electrode during a beginning portion of a row scanning cycle, thereby driving the voltage of said at least one column electrode to close to a target value, and a minor portion of the energy of the second energy storage device is transferred to the at least one column electrode during such row scanning cycle but after the beginning portion of such row

scanning cycle, thereby driving the voltage of said at least one column electrode to substantially the target value.

35 (Previously presented) The method of claim 33, wherein during a portion of a row scanning cycle, both the first and the second energy storage devices are connected to the at least one column electrode.

36. (Previously presented) An apparatus for driving a liquid crystal display, said display comprising an array of elongated row and an array of elongated column electrodes arranged transverse to the row column electrodes, wherein overlapping areas of the two arrays of column electrodes define pixels of the display when viewed in a viewing direction, said apparatus comprising:

a power supply;

a first and a second electrical energy storage device; and

a switching circuit connecting the power supply to the devices to charge the devices and connecting the devices to at least one of the column electrodes to supply electrical potential(s) thereto, so that in one row scanning cycle, the first device is connected to the power supply to charge the first device and the second device is connected to the at least one column electrode to apply to it an electrical potential, and in another row scanning cycle, the second device is connected to the power supply to charge the second device and the first device is connected to the at least one column electrode to apply to it an electrical potential, wherein said circuit connects the power supply and the at least one column electrode to the two energy storage devices according to a switching timing waveform that is delayed relative to said row scanning cycles, so that at least one of the energy storage devices is connected to the at least one column electrode during a portion of a row scanning cycle, and the remaining energy storage device is connected to the at least one column electrode during another portion of such row scanning cycle and wherein the display displays desired images.

37. (Previously presented) The apparatus of claim 36, wherein said power supply comprises a voltage regulator, a comparator and a current source.

38. (Original) The apparatus of claim 36, wherein said circuit connects the device alternately to the power supply and the at least one column electrode.

39. (Original) The apparatus of claim 36, said apparatus comprising a first and a second electrical energy storage device, wherein said circuit connects the power supply and the at least one column electrode to the two energy storage devices in alternate row scanning cycles.

40. (Cancelled)

41. (Previously presented) The apparatus of claim 36, wherein said time delay is such that a major portion of the energy of the first energy storage device is transferred to the at least one column electrode during a beginning portion of such row scanning cycle, thereby driving the voltage of said at least one column electrode to close to a target value, and a minor portion of the energy of the second energy storage device is transferred to the at least one column electrode during such row scanning cycle but after the beginning portion of such row scanning cycle, thereby driving the voltage of said at least one column electrode to substantially the target value.

42. (Previously presented) The apparatus of claim 36, wherein said switching timing waveform is such that during a portion of such row scanning cycle, both the first and the second energy storage devices are connected to the at least one column electrode.

43. (Previously presented) An apparatus for driving a liquid crystal display, said display comprising an array of elongated row and an array of elongated column electrodes arranged transverse to the row column electrodes, wherein overlapping areas of the two arrays of column electrodes define pixels of the display when viewed in a viewing direction, said apparatus comprising:

a power supply;

a first and a second electrical energy storage device; and

a switching circuit connecting the power supply to the devices to charge the devices and connecting the devices to at least one of the column electrodes to supply electrical potential(s) thereto, so that in one row scanning cycle, the first device is connected to the power supply to charge the first device and the second device is

connected to the at least one column electrode to apply to it an electrical potential, and in another row scanning cycle, the second device is connected to the power supply to charge the second device and the first device is connected to the at least one column electrode to apply to it an electrical potential, wherein the first energy storage device drives the voltage of said at least one column electrode to close to a target value during a beginning portion of a row scanning cycle, and the second energy storage device drives the voltage of said at least one column electrode to substantially the target value during such row scanning cycle but after the beginning portion of such row scanning cycle.

44. (Previously presented) The apparatus of claim 43, wherein a major portion of the energy of the first energy storage device is transferred to the at least one column electrode during a beginning portion of a row scanning cycle, thereby driving the voltage of said at least one column electrode to close to a target value, and a minor portion of the energy of the second energy storage device is transferred to the at least one column electrode during such row scanning cycle but after the beginning portion of such row scanning cycle, thereby driving the voltage of said at least one column electrode to substantially the target value.

45. (Previously presented) The apparatus of claim 43, wherein during a portion of a row scanning cycle, both the first and the second energy storage devices are connected to the at least one column electrode.

46. (Previously presented) The apparatus of claim 1, wherein said circuit supplies electrical potentials to the row and column electrodes according to periodic addressing cycles of the liquid crystal display, and said change of at least one of the electrical potentials supplied to the row and column electrodes occurs in a predetermined timing relationship to the addressing cycles.

47, 48. cancelled.

49. (New) An apparatus for driving a liquid crystal display, said display comprising an array of elongated row and an array of elongated column electrodes arranged transverse to the row electrodes, wherein overlapping areas of the two arrays of

electrodes define pixels of the display when viewed in a viewing direction, said apparatus comprising:

at least a first and a second separate power source providing at least two outputs; and

a circuit generating, in response to the power source outputs, driving voltages different from the power source outputs for driving the row and column electrodes during periodic field addressing cycles for displaying images, said driving voltages generated during a first cycle of the field addressing cycles being different from driving voltages generated during a preceding or succeeding second field addressing cycle, said voltages generated during the first cycle together with the outputs spanning a first voltage range, and said voltages generated during the second cycle together with the outputs spanning a second voltage range different from the first voltage range, and wherein at least two of the driving voltages are generated substantially simultaneously by being pulled to potentials that differ from the power source outputs by predetermined potential difference values.

50. (New) The apparatus of claim 49, wherein at least a first one of the driving voltages is generated by being pulled to a potential that differs from a first one of the power source outputs by a predetermined potential difference value, and at least a second one of the driving voltages is generated by being pulled to a potential that differs from a second one of the power source outputs by a predetermined potential difference value.

51. (New) The apparatus of claim 50, wherein the circuit generates at least the first driving voltage during the first cycle of the field addressing cycles, and the at least second driving voltage during the second cycle of the field addressing cycles.

52. (New) The apparatus of claim 49, wherein a first pair of the driving voltages is generated by being pulled to potentials that differ from a first one of the power source outputs by predetermined potential difference values, and a second pair of the

driving voltages is generated by being pulled to potentials that differ from a second one of the power source outputs by predetermined potential difference values.

53. (New) The apparatus of claim 52, wherein each of the two pairs of voltages comprises a non scanning voltage value driving the row electrodes and voltage value driving the column electrodes.

54. (New) The apparatus of claim 49, wherein the circuit comprises a pair of capacitors and a switching device connecting the power sources and the capacitors to generate the driving voltages.

55. (New) An apparatus for driving a liquid crystal display, said display comprising an array of elongated row and an array of elongated column electrodes arranged transverse to the row electrodes, wherein overlapping areas of the two arrays of electrodes define pixels of the display when viewed in a viewing direction, said apparatus comprising:

at least a first and a second separate power source providing at least two outputs; and

a circuit comprising an energy storage device and generating by means of said storage device and in response to the power source outputs, driving voltages for driving the row and column electrodes during periodic field addressing cycles for displaying images, said driving voltages generated during a first cycle of the field addressing cycles being different from driving voltages generated during a preceding or succeeding second field addressing cycle.

56. (New) The Apparatus of claim 55, wherein at least a first one of said driving voltages is generated by being pulled to a first potential that differs from a first one of the power source outputs.

57. (New) The Apparatus of claim 56, wherein at least a second one of said driving voltages different from the at least first driving voltage is generated by being pulled to a second potential that differs from a second one of the power source outputs.

58. (New) The Apparatus of claim 57, wherein the at least first and second driving voltages are generated over the same periodic field addressing cycles.

59. (New) The Apparatus of claim 57, wherein the at least first and second driving voltages are generated over different periodic field addressing cycles.

60. (New) The Apparatus of claim 57, wherein each of the at least first and second driving voltages differs from said first and second outputs by substantially the same predetermined potential difference value.

61. (New) The Apparatus of claim 56, wherein at least first driving voltage differs from said first output by a potential difference value that is a function of a potential difference across the storage device.

62. (New) The Apparatus of claim 56, the storage device having at least one terminal, wherein said at least first driving voltage is generated by means of an electrical potential at one terminal of the storage device.

63. (New) The Apparatus of claim 55, wherein at least two of the driving voltages are generated substantially simultaneously by being pulled to potentials that differ from the power source outputs by predetermined potential difference values.